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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,165	04/29/2005	Michael Hohne	22204-100571	9284
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CLARK HILL, P.C. 500 WOODWARD AVENUE, SUITE 3500 DETROIT, MI 48226			EXAMINER WONG, TINA MEI SENG	
			ART UNIT	PAPER NUMBER
			2874	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,165

Applicant(s)

HOHNE ET AL.

Examiner

Tina M. Wong

Art Unit

2874

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 13 is/are allowed.
- 6) ☒ Claim(s) 1-11 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office action is responsive to Applicant's response submitted 28 January 2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0209655 to Wang.

In regards to claims 1 and 2, Wang discloses a multilayered sensor (Figure 4c) through which an optical waveguide (410) is passed, the optical waveguide defining a structure in which the optical waveguide is contained, the structure consisting of a front layer (471) and a rear layer (472), which transmit the external application of force directly on to the optical waveguide, the structure further including domes (in between the clip/rib portion 471a forming an upward "U" shape) each defining slots for retaining the optical waveguide. Furthermore, Wang teaches the clips for deforming the optical waveguide in a curved path, over each of the clip protrusions as seen in Figure 4C as well as bent by an external application of force. But Wang fails to specifically state the ribs to retain the waveguide in a single plane. However, referring to Figure 4C, assuming the sheet of paper is the single plane, the ribs keep the waveguide pushing towards to top of the sheet of paper, which is the single plane. Therefore, although not explicitly stated, it

can be observed from the Figure that the ribs and clips retain the waveguide a curved path by pushing up towards the top of the paper or pushing down towards the bottom of the paper.

In regards to claim 14, Wang teaches a multilayered sensor (Figure 4c) comprising a first layer through which an optical waveguide (410) is guided, being arranged in such a way that in the case of exposure to an action of an external force, the external force acts on the optical waveguide, a second layer (472) lying against the first layer and a third layer (471) arranged so that the first layer is between the second and third layers, the third layer including domes (in between the clip/rib portion 471a forming an upward "U" shape) having slots through which the optical waveguide is guided. But Wang fails to specifically teach the third layer to include domes formed the third layer. However, when the slots (clip/rib) portion of the third layer is formed, the dome portion would inherently also have been formed on the third layer. Therefore, although not explicitly stated, the dome portion is also formed on the third layer.

Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2003/0209655 to Wang, as applied to claim 1 above, in view of U.S. Patent 5,913,245 to Grossman.

In regards to claims 6 and 7, although Wang does not specifically disclose an adhesive layer applied to the edges of the front and rear layers, Grossman discloses a similar multi-layered sensor, deformed by a force to include an adhesive for joining together components. Furthermore, by applying an adhesive around the outside of the sensor would prevent unwanted external factors from damaging or altering the sensitive fiber and sensor. Therefore, since Wang is silent on the detail of joining the components, it would have been obvious at the time the

invention was made to a person having ordinary skill in the art to have included an adhesive around the edges of the front and rear layers for the reasons indicated above.

In regards to claim 8, Wang discloses all discussed above and further discloses a first layer (layer between the waveguide and the second layer) through which the optical waveguide is passed and a second layer (471) which abuts the first layer. But Wang fails to specifically disclose the first layer to have a greater compressibility than the second layer. However, Grossman does disclose “suitable values of flexibility and compressibility can be determined by those skilled in the art by conventional engineering and development procedures.” Furthermore, it would be desirable for the first layer to have a greater compressibility than the second layer since the force/pressure is applied directly to the first layer to deform the fiber in order to more easily obtain the amount of force/pressure applied. Since Wang and Grossman are both from the same field of endeavor, it would have been obvious at the time the invention was made to a person having ordinary skill in the art for the first layer to have a greater compressibility than the second layer.

In regards to claim 9, Wang discloses all discussed above and further discloses a third layer (472), where the first layer (layer between the waveguide and the second layer) is disposed between the second (471) and third (472) layer. But Wang fails to specifically disclose the third layer to have a lower compressibility than the first layer. However, Grossman does disclose “suitable values of flexibility and compressibility can be determined by those skilled in the art by conventional engineering and development procedures.” Furthermore, it would be desirable for the third layer to have a lower compressibility than the first layer in order to protect the waveguide from bending too far, past the bending radius of the waveguide, causing damage to

the waveguide. By choosing a layer with a lower compressibility, this can be prevented. Since Wang and Grossman are both from the same field of endeavor, it would have been obvious at the time the invention was made to a person having ordinary skill in the art for the first layer to have a lower compressibility than the first layer.

In regards to claim 10, Grossman discloses the waveguide (303 & 304) to be passed though the sensor (76 & 78) at least twice. (Figure 12)

In regards to claim 11, Grossman shows (Figure 9) the optical waveguide (58) to be passed through the sensor (60 & 62) in a wave-like configuration. In Figure 9, it can be seen that the waveguide is weaved through the monofilaments and threads to form a wave-like configuration. Furthermore, Wang also shows (Figure 4c) the optical waveguide to be passed through a sensor in a wave-like configuration.

Allowable Subject Matter

Claims 12 and 13 are allowed. The prior art of record fails to disclose or reasonably suggest a multilayered sensor comprising a plurality of domes in a first layer including a slot extending therethrough, where the plurality of domes are spaced apart from one another longitudinally and offset from one another in a lateral direction in addition to the accompanying features of the independent claim. Close prior arts were relied upon and discussed in previous Office actions throughout prosecution of this application.

Response to Arguments

Applicant's arguments filed 28 January 2008 have been fully considered but they are not persuasive.

Applicant argues Wang does not disclose domes each defining a slot for retaining the waveguide. However, the Examiner disagrees. As discussed above, Wang does teach domes each defining a slot. Wang discloses the domes to be two clip/rib portions forming an upward "U" shape or downward "U" shape, depending on the layer being referenced. Between the two clip/rib portions, a dome with slots is present. Furthermore, although Wang does heavily rely upon the forces of the plates to retain the optical fiber, the slot/dome also further aid in retaining a deformed waveguide once an external force is exerted upon the sensor. Without the presence of the slot/dome, the waveguide would not necessarily deform in a manner where the sensor would be capable of performing its desired functions. Therefore, the slot/domes aid in the retention of the optical waveguide.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Wong whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tina M Wong/
Primary Examiner, Art Unit 2874